BY ORDER OF THE COMMANDER
SPANGDAHLEM AIR BASE (USAFE)

SPANGDAHLEM INSTRUCTION 15-101

13 MARCH 2004

Weather

WEATHER SUPPORT

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

NOTICE: This publication is available digitally on the AFDPO WWW site at: **http://www.e-publishing.af.mil.**

OPR: 52 OSS/OSW (Capt Robert L. Russ)
Certified by: 52 OSS/CC (Lt Col Kevin A. Booth)
Supersedes SPANGDAHLEMI 15-101, 1 April 2002
Pages: 47
Distribution: F

This instruction implements Air Force Policy Directive (AFPD) 15-1, *Atmospheric and Space Environmental Support;* Air Force Instruction (AFI) 10-229, *Responding to Severe Weather Events;* AFI 15-114, *Functional Resource and Weather Technical Performance Evaluation*; AFI 15-128, *Aerospace Weather Operations - Roles and Responsibilities;* Air Force Manual (AFMAN) 15-111, *Surface Weather Observations;* AFMAN 15-124, *Meteorological Codes;* AFMAN 15-129, *Aerospace Weather Operations Process and Procedures;* AFMAN 15-135, *Combat Weather Team Operations*, Commander United States Air Forces Europe (USAFE) Operations Plan (OPLAN) 4353-03, Vol I, *Weather Support For Operations in US European Command*, and Federal Meteorologists Handbook 1, *Surface Weather Observations and Reports*. It establishes the responsibilities and procedures for providing weather support and using weather services available for Spangdahlem Air Base (SAB). It applies to all wing personnel**.** Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 37-123, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS).

SUMMARY OF REVISIONS

This document is substantially revised and must be completely reviewed.

Procedures for the AN/FMQ-19, Automatic Meteorological Station (AMS) have been added. Observed pilot category weather advisories have been deleted and new procedures on Pilot Reports (PIREP) have been added. Space Weather Support has been added.

1. General Information:

1.1. Background: The 52d Operations Support Squadron Weather Flight (52 OSS/OSW), also known as the Combat Weather Team (CWT), provides and/or arranges for weather support to enhance the 52d Fighter Wing's (52 FW) mission--to be constantly ready to promote stability and thwart aggression to achieve United States (U.S.) and North Atlantic Treaty Organization (NATO) objectives. All host and tenant units on SAB are supported. Basic weather concepts and procedures are outlined in Air Force and Major Command directives. This instruction establishes the responsibilities and procedures for areas of weather support that must be coordinated at the local level to meet mission needs. It consolidates weather support requirements and procedures for peacetime operations. It does not cover weather support procedures for emergency war operations or certain other special operations or procedures. These are covered in applicable operations plans and regulations.

1.2. Concept of Operations:

1.2.1. The CWT works in partnership with the USAFE Operational Weather Squadron (OWS), located at Sembach AB, to provide a variety of forecasting and resource protection services. This relationship is documented in Commander United States Air Forces, Europe (COMUSAFE) Plan 4353-03, Volume I.

1.2.2. The CWT has the following duty sections:

1.2.2.1. Airfield Services (AS) section. The AS Forecaster (ASF) is directly responsible for augmenting and backing-up the AMS, and for coordinating the Terminal Aerodrome Forecast (TAF) and resource protection with the OWS. The ASF acts as the "eyes forward" for the OWS while conducting a meteorological watch (METWATCH) over Spangdahlem AB. The ASF also supports the Supervisor of Flying (SOF) and provides all other services aiding the launch and recovery of aircraft.

1.2.2.2. Mission Weather (MW) section. The MW Forecaster (MWF) is responsible for producing tailored flight weather briefings (primarily, the Mission Execution Forecast (MEF)) for the local flying squadrons. The MWF will provide in-person briefings at the flying squadrons when requested and CWT manning allows. The MWF will also provide weather briefing support for transient aircraft during normal operating hours, or will coordinate transient support with the OWS. The MWF conducts MISSIONWATCH and coordinates with the SOF when weather may affect ongoing missions, and to get feedback from returning aircraft.

1.2.2.3. Senior Forecaster: The senior member of the AS or MW sections on duty is the senior forecaster. This person is responsible for operations during their shift, ensures all products are horizontally consistent, and that personnel are allocated to tasks in accordance with local duty priorities.

1.2.2.4. Staff. The staff provides or arranges for operational weather products and services that support 52 FW staff, tenant units, and transient units using 52 FW facilities.

1.2.2.4.1. The CWT Commander holds the position of command meteorologist, and exploits knowledge of military meteorology and wing operations to make weather a force multiplier. This person is responsible for managing the CWT and acts as the Staff Weather Officer to 52 FW senior leadership.

1.2.2.4.2. The CWT Deputy Commander holds the position of operational meteorologist and is the scientific leader exploiting knowledge of atmospheric science and weather oper-

ations to enhance combat-force effectiveness. This position serves as the primary liaison with each of the flying squadrons.

1.2.2.4.3. The Chief of Weather Station Operations (CWSO) provides technical leadership. The CWSO adapts resources to mission requirements, manages the AS and MW sections, and manages weather services and equipment. The CWSO is responsible for all training activities and the technical health of the forecast unit.

1.3. Operational Support Requirements:

1.3.1. The CWT provides observing services 24 hours a day by using the AMS. During airfield operating hours, the AMS will be augmented and backed-up by CWT personnel. During periods when the airfield is closed, the AMS will disseminate observations automatically (when fully operational). The AMS will not be backed-up after airfield operating hours.

1.3.2. The OWS - CWT team provides forecasting services (to include resource protection) for the local airfield and for missions launched from SAB. Forecasting services are provided during times when the airfield is open (typically, weekdays 0600L to 2200L). There is a standby forecaster on call during all other times.

1.3.3. The CWT hours of operation are based on the local flying schedule, with a forecaster available at least 4 1/2 hours prior to first take-off through to airfield closure (typically 0330 to 1000L) During periods of crises, the CWT can support 24 hour operations.

1.3.4. The CWT attempts to satisfy all requirements. When requests for weather support exceed CWT abilities, the senior forecaster prioritizes tasks accordingly: This can happen from either a short-term emergency (like an aircraft mishap) or long-term taskings (such as deployment of several personnel). The duty priorities are:

1.3.4.1. Complete Emergency War Order taskings.

1.3.4.2. Support in-flight and ground emergency tasks (time critical safety task).

1.3.4.3. Respond to Pilot-to-Metro Service (PMSV) contacts (flight safety).

1.3.4.4. Support the SOF (flight safety).

1.3.4.5. Augment and back up surface observations (flight safety and resource protection).

1.3.4.6. Perform coordinated METWATCH with the OWS (resource protection).

1.3.4.7. Perform Severe Weather Action Plan (SWAP) duties (resource protection).

1.3.4.8. Disseminate Urgent PIREPs and Special Air Reports (AIREPs) (flight safety).

1.3.4.9. Disseminate Routine PIREPs/AIREPs (flight safety).

1.3.4.10. Coordinate TAF development (normal operations).

1.3.4.11. Prepare and disseminate MEFs (normal operations).

1.3.4.12. Provide flight weather briefings (i.e. DD Form 175-1, **Flight Weather Briefing**) (normal operations).

1.3.4.13. Provide all other briefings, such as in-person briefs, phone briefs, and/or battle staff briefings. Priority will be determined by operational necessity, and will vary.

1.3.4.14. All other duties:

1.3.5. As a minimum, the CWT will attempt to complete all duties in paragraph **1.3.4.1.** through **1.3.4.12.** The CWT will seek back-up support from the OWS or other agencies if other than a temporary interruption is expected to these duties. Other tasks will not be backed-up.

1.4. Alternate Weather Operating Location:

1.4.1. The alternate operating location (AOL) is Building 73, 52d Component Maintenance Squadron (52 CMS) Propulsion Flight, room #5, Defense Switched Network (DSN) 452-7278. The alternate observing site is the edge of the parking lot by the precision approach antenna. It is partially blocked for visibility but is sufficient to augment or take representative observations of the airfield.

1.4.2. Alternate Operating Location Procedures. There are three scenarios during which the CWT could evacuate.

1.4.2.1. Bldg 47 uninhabitable, but intact: Under this scenario, if Bldg 47 must be evacuated, all CWT members will walk to Bldg 73 and continue operations. If Bldg 73 is not available, the CWT members will evacuate to the WOC, DSN 452-6141 or 6226..

1.4.2.1.1. The CWT will be able to provide full airfield service with the exception of PMSV service. PMSV service will be backed-up by Ramstein AB METRO or USAFE METRO, who will be contacted by phone after reaching the AOL.

1.4.2.1.2. The CWT will be able to provide full mission weather services to include MISSIONWATCH, and briefings.

1.4.2.1.3. Staff briefing support may be limited, but will be supported to the fullest extent possible.

1.4.2.2. Bldg 47 experiences catastrophic loss of communications and/or power: The CWT will evacuate to Bldg 73 or the WOC if these facilities are unaffected by the communications/power loss and provide services as in paragraphs **1.4.2.1.1.** through **1.4.2.1.3.** If the interruption is base-wide, the CWT will remain in-place using back-up equipment and dissemination equipment to the best of its abilities. The following services will be available:

1.4.2.2.1. Mission weather services will be limited to verbal briefings. MISSIONWATCH will be limited by communications capability to the USAFE OWS.

1.4.2.2.2. Airfield services will be limited to manual observing using hand-held instruments . Observations will be disseminated by phone, radio, or runner (see chapter 5, Dissemination). PMSV services will be backed-up by Ramstein Air Base (AB) METRO or USAFE METRO.

1.4.2.2.3. Staff briefings will be supported to the fullest extent possible, but will be limited to verbal briefings only.

1.4.2.3. Bldg 47 destroyed. The CWT will evacuate to Bldg 73, the WOC or other facilities as directed. If Bldg 47 is destroyed, the FMQ-18, Tactical Weather Radar (TWR) , AMS, and N-TFS will be inoperable for an extended time. The CWT will salvage or procure tactical observing, PMSV, and N-TFS systems to provide a more robust capability while awaiting reconstruction of original infrastructure.

1.4.2.3.1. Airfield services will be limited to manual observing until the tactical systems arrive and are set-up. The PMSV will not be supported until a replacement radio can be delivered. Ramstein or USAFE METRO will provide back-up services. Radar METWATCH will be limited to those products available over the Internet and NATO Automated Meteorological Information System (NAMIS). All other services will be provided.

1.4.2.3.2. Mission weather services will be provided as normal. MISSIONWATCH will be degraded by the loss of the local radar.

1.4.2.3.3. Staff briefings will be supported as normal.

1.5. Severe Weather Actions. The CWT is responsible for conducting periodic exercises of the SWAP in accordance with (IAW) AFI 10-229, *Responding to Severe Weather.* These exercises will be coordinated with 52 FW/Wing Plans (XPI) and the USAFE OWS. A severe weather risk assessment is at **Attachment 2.**

1.6. Backup Power Requirements.

1.6.1. All operational CWT computers and communications equipment in or on Bldg 47 (to include the TWR) are required to have uninterruptible power to prevent loss of critical operational weather data. An Uninterruptible Power Supply (UPS) and diesel back-up generators are installed in Bldg 47 and maintained by 52d Civil Engineer Squadron Power Production Flight (52 CES/CEOUP).

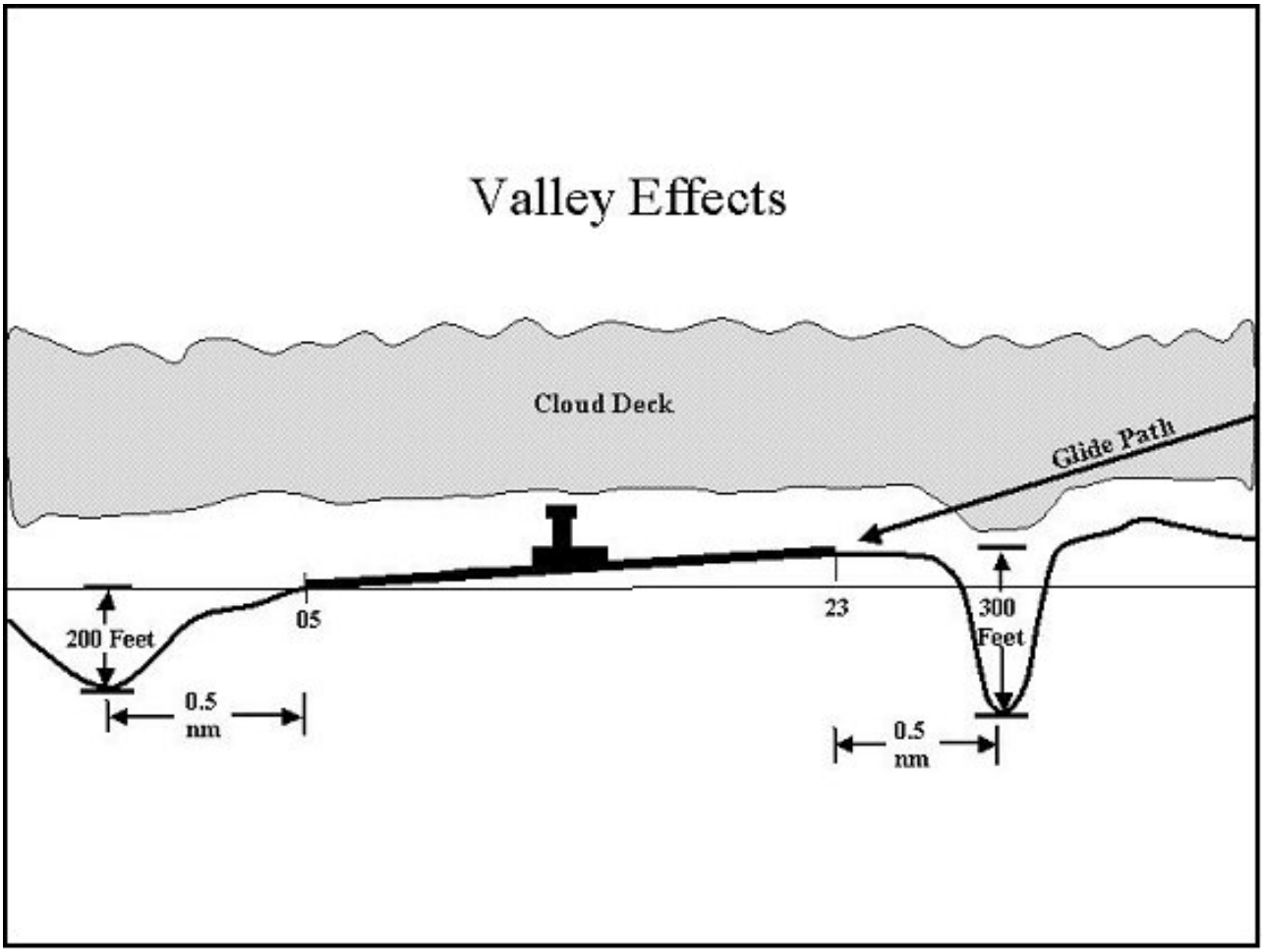
1.6.2. The AMS is required to have internal battery backup power for its Field Data Collection Units (FDCUs). These are maintained by 52d Communications Squadron MET/NAV Maintenance (52 CS/SCMNM).

2. Weather Observing:

2.1. General. The CWT utilizes the AMS to take and disseminate automatic observations in accordance with AFMAN 15-111. During normal airfield operating hours, the CWT provides an ASF to augment and back-up the AMS. There is always an ASF on 30-minute standby when the airfield is closed.

2.2. Limitations. Due to the valley on the approach end to runway 23, cloud bases at the pilot's decision point are often lower than those measured by the ceilometer located near the landing threshold (see **Figure 1.**). This becomes critical when cloud bases are less than 1,000 feet above ground level (AGL), as the lower clouds may interfere with pilots visually acquiring the runway. The CWT does not have the capability to accurately measure heights or amount of cloud cover over the approach to runway 23. The ASF appends remarks to the surface observation to indicate this condition, i.e., LWR CLDS OVR APCH END.

Figure 1. Valley effects on clouds off runway 23.



2.3. Meteorological Equipment Locations and Limitations. Weather sensors are located near each end of the runway and at midfield.

2.3.1. Runway 23 sensors. See **Figure 2.** for airfield placement. This sensor suite consists of the following:

2.3.1.1. Ambient Light Sensor. Provides ambient light measurements for visibility and Runway Visual Range (RVR) measurement.

2.3.1.2. Barometric Pressure Sensor (3 each). Provides highly accurate pressure measurements for altimeter settings and other reported pressure parameters.

2.3.1.3. Ceilometer. Determines cloud bases in AGL and cloud amount up to 25 Kft (current software limits equipment to 12 Kft).

Figure 2. Weather sensor placement at 23 end of runway.

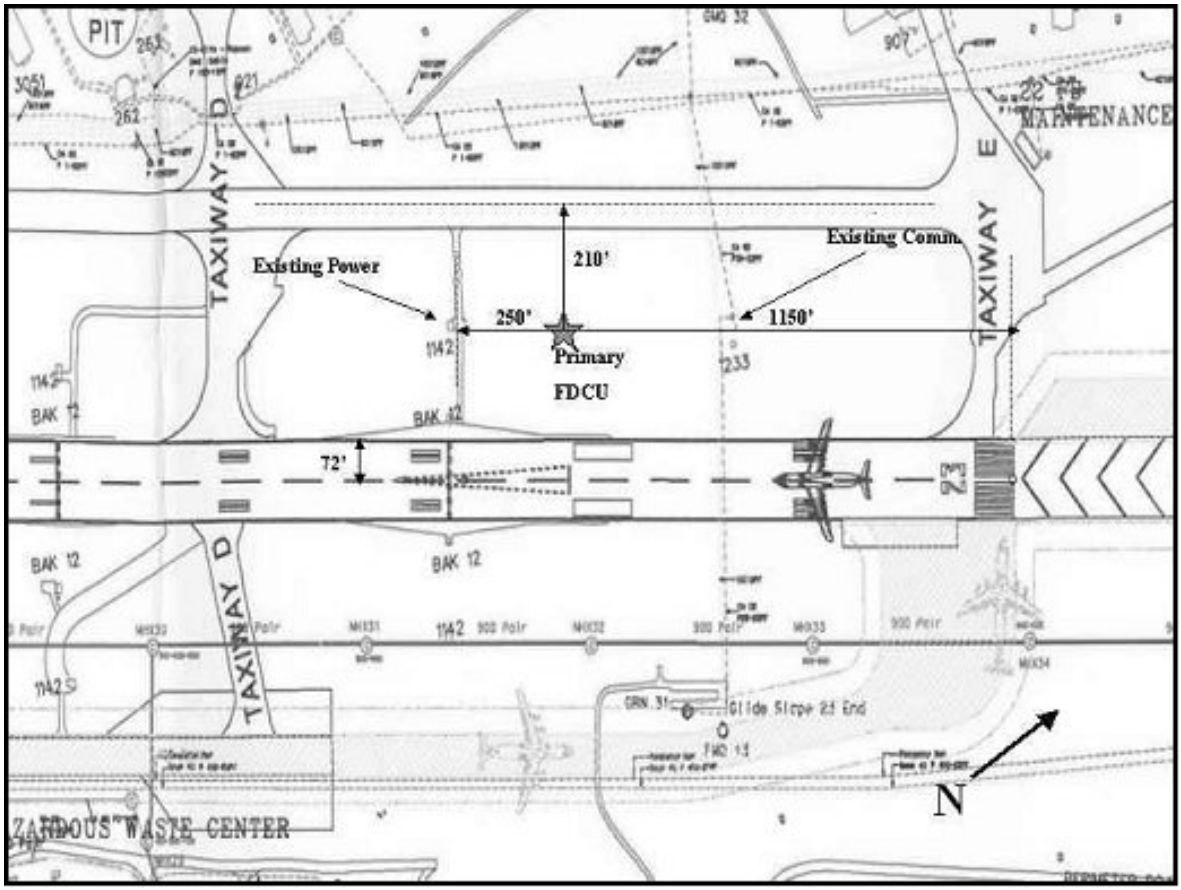
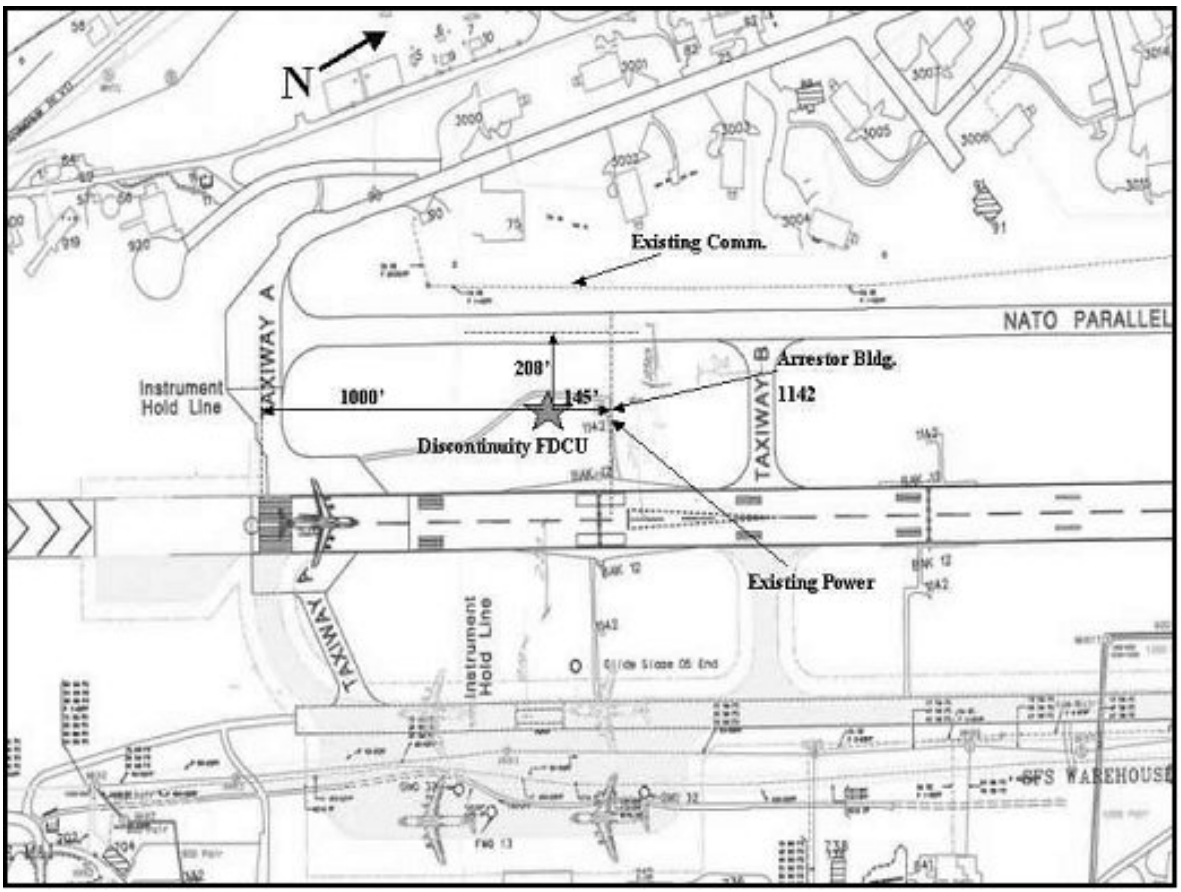


Figure 3. Weather sensor placement at 05 end of runway.



2.3.1.4. Wind Sensor. Rugged prop and vane sensor evaluates wind speed and direction.

2.3.1.5. Freezing Rain sensor. Reports presence of freezing rain at rates as low as 0.01-inch accumulation per hour.

2.3.1.6. Humidity and Temperature sensor. Measures temperature and humidity from -40 °C to 85 °C and 0% to 100% humidity.

2.3.1.7. Lightning sensor. Detects optical, electrical, and magnetic pulses to determine occurrence of cloud-to-cloud and cloud-to-ground lightning strikes. It also determines bearing and distance to detected strikes.

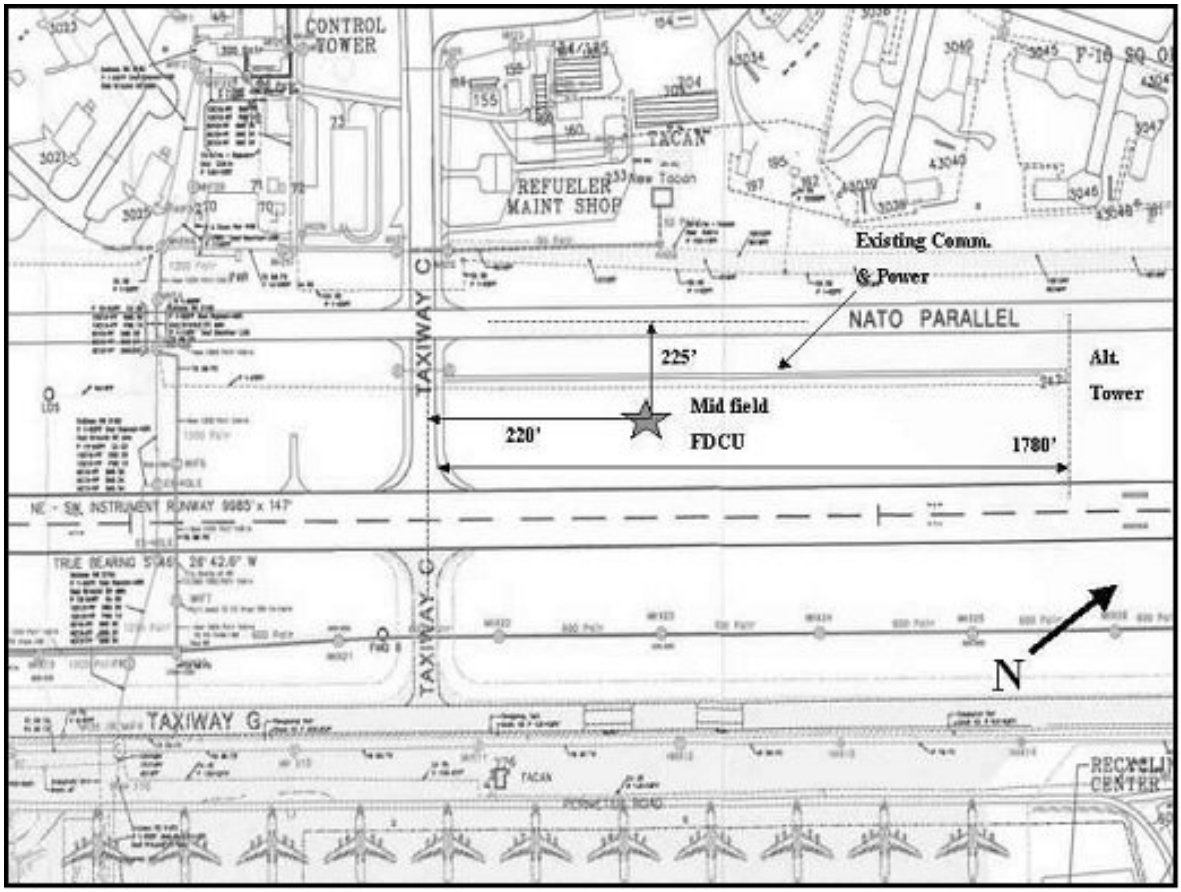
2.3.1.8. Present Weather sensor. Detects presence of precipitation, type, and intensity.

2.3.1.9. Visibility Sensor. Provides accurate visibility and RVR measurements.

2.3.2. Runway 05 sensors. See **Figure 3.** for airfield placement. This sensor suite consists of the following: Ceilometer and visibility sensors.

2.3.3. There is a visibility sensor at midfield. See **Figure 4.** for airfield placement.

Figure 4. Weather sensor placement near midpoint of runway.



2.3.4. AMS Limitations.

2.3.4.1. Augmented Observations. From the observation point of the weather station the ASF cannot see either end of the runway. There is no backup to the AMS for determining RVR, since the terrain on both ends of the runway prevents counting runway lights to estimate RVR. RVR is only reported in 50 m increments. RVR criteria in FLIPs are rounded to the nearest 50m to derive local and special observing criteria.

2.3.4.2. Automated Observations. Ceilings will be determined using a weighted average of conditions for the 30 minutes prior to the time of observation and may not be representative of the actual conditions at the time of observation. All other elements will be evaluated within 10 minutes of the time of observation. Ceiling height is currently software limited to 12 Kft and sensor limited to 25 Kft. Clouds above 12 Kft altitude will not be reported. RVR is only reported in 50m increments. The AMS sensors can't determine sector visibility nor all types of precipitation. The lightning detector is displaced approximately 1 mile northeast from the center of the airfield and can report false cloud-to-cloud lightning observations from optical flashes (such as aircraft strobe lights).

2.4. Augmented Observing Services.

2.4.1. Aviation Routine Weather Reports (METAR): METAR observations are complete observations taken hourly 1 to 5 minutes before the hour. They are disseminated locally and long line and include the following elements:

2.4.1.1. Time in Greenwich Mean Time (GMT) (1).

2.4.1.2. Winds in knots - direction winds are from, 2 min average speed, and 10 min maximum gusts (2).

2.4.1.3. Visibility and RVR in meters - RVR when the prevailing visibility is =1,600 meters, or if RVR is =1,850 meters (3).

2.4.1.4. Weather phenomena (i.e., fog, mist, and rain) (4).

2.4.1.5. Clouds in amount coverage and height in hundreds of feet AGL (5).

2.4.1.6. Temperature and dew point in degrees Celsius (6/7).

2.4.1.7. Altimeter setting in inches of mercury (8).

2.4.1.8. Significant remarks such as runway surface condition and tower visibility (9).

2.4.1.9. Sea level pressure (only transmitted long line) (9).

2.4.1.10. North Atlantic Treaty Organization (NATO) Color Code/United States Air Forces in Europe (USAFE) Pilot Category (10).

2.4.1.11. Pressure Altitude calculated in feet above mean sea level (MSL) (11).

2.4.1.12. Density Altitude calculated in feet MSL (12).

2.4.1.13. Example observation:

1 2 3 4 5 6/7 8

METAR ETAD 2356Z 25006KT 0300 R05/M0300 FG SCT000 OVC001 12/11 ALSTG 29.92
RMK (1013MB) FG SCT000 RED/A WR// PA +1197 DA +3200 56/TC.

9 10 11 12

2.4.2. Aviation Selected Special Weather Report (SPECI) sent in place of a METAR observation.

2.4.2.1. Special observations are observations reporting operationally significant changes in the weather. They include elements critical to flight operations. Single element SPECI will be taken only when a delay in reporting all elements of the SPECI would cause an immediate threat to life or property. Special ceiling and visibility criteria are listed at **Table 1.**:

Table 1. Special Criteria.

Ceiling (ft). When the ceiling is observed to form below, decrease to less than or, if below, increase to equal or exceed:	**Visibility (m).** When prevailing visibility is observed to decrease to less than or, if below, increase to equal or exceed:	**RVR (m).** When RVR is observed to decrease to less than or, if below, increase to equal or exceed:
3,000	5,000	P1,500
1,500	3,200	1,500
1,100	2,400	1,200
1,000	2,000	750
700	1,600	600
600	1,200	500
500	800	
400	400	
300		
200		
100		

2.4.2.2. When a tornado appears or disappears from sight.

2.4.2.3. When a thunderstorm begins or ends (15 minutes after last occurrence of thunder, or lightning if too noisy to hear thunder).

2.4.2.4. When hail begins or ends.

2.4.2.5. When freezing precipitation begins, ends, or changes in intensity.

2.4.2.6. When ice pellets begin, end or change in intensity.

2.4.2.7. Any other type of precipitation begins or ends.

NOTE: Except for freezing rain, freezing drizzle, hail, and ice pellets, a SPECI is not required for changes in type or the beginning or ending of one type while another is in progress.

2.4.2.8. Squall: A strong wind characterized by a sudden onset in which the wind speed increases at least 16 knots and is sustained at 22 knots or more for at least 1 minute.

2.4.2.9. The wind direction changes by 45 degrees or more in less than 15 minutes with sustained winds (or gusts) of 10 knots or more throughout the wind shift.

2.4.2.10. Upon receipt, transmit runway condition readings as a SPECI or append to a METAR or SPECI being taken at the time of notification. (This non-weather criteria is treated as a SPECI for purpose of timely reporting long line; otherwise, when appended to any observation, the report is considered as additional data and not as SPECI criteria).

2.4.2.11. Upon receipt of a reportable tower visibility value, when either the tower's or weather’s visibility is less than 6,000 meters and differs by a reportable SPECI criteria value, a SPECI is transmitted with the lower of the two values reported as prevailing and the other reported as a remark.

2.4.2.12. Within 15 minutes after returning to duty following a break in hourly coverage if a METAR was not filed as scheduled.

2.4.2.13. Immediately following notification or sighting of a nuclear accident, volcanic ash, or anything critical to safety of aircraft operations occurs at or near the station.

2.4.3. Local Observations. Local observations report changes in conditions significant to airfield operations but do not meet special criteria. Local criteria are:

NOTE: Local observations for RVR and altimeter setting are no longer issued because these elements are displayed in the ATC facilities.

2.4.3.1. The ceiling decreases to less than, or increases to equal or exceeds 4,000 feet and 8,000 feet.

2.4.3.2. Visibility decreases to less than, or increases to equal or exceeds 8,000 meters.

2.4.3.3. When there is a change in active runway.

2.4.3.4. Runway Condition Reading (RCR) and/or Runway Surface Condition (RSC) are reported on every local observation.

2.4.3.5. Immediately following notification or sighting of an aircraft mishap.

2.5. Automated Observing Services.

2.5.1. The AMS will record and disseminate METAR and SPECI observations in accordance with AFMAN 15-111 and local special observing criteria. These observations will be distinguished with the label AUTO after the time element in the body of the observation.

2.5.2. Flight operations may not be conducted with automatic observations. Flight operations require an ASF augment the AMS.

2.6. Cooperative Weather Watch (CWW). The CWT maintains a cooperative weather watch with Air Traffic Control Tower in accordance with AFMAN 15-111, *Surface Weather Observations*; AFI 13-203, *Air Traffic Control*, and local agreement. The CWT trains, and initially certifies, tower controllers on local weather phenomena and taking limited observations in accordance with the program (see paragraph **8.3.1.5.**).

3. Weather Forecasting:

3.1. General.

3.1.1. Forecasting Services are provided by HQ USAFE OWS at Sembach Air Base in concert with the Spangdahlem CWT.

3.1.2. HQ USAFE OWS. The OWS is open 24 hours per day, 7 days a week and issues all TAFs.

3.1.3. The CWT maintains a limited duty weather station and issues all MEFs. Normal MW section hours are 0330-1830L, Monday through Friday. The weather flight adjusts its hours to provide service during all scheduled wing flying. The MW section is closed on weekends, 52 FW down days, and US holidays.

3.1.4. The CWT provides an ASF during hours the airfield is open, normally 0600-2200L. There is always an ASF on standby when the AF section is closed--standby personnel may be reached by contacting the WOC.

3.2. Limitations: Forecasting services are subject to prioritization in accordance with paragraph **1.3.4.** Therefore, some forecasting service requests may occasionally go unmet. The CWT will attempt to notify affected agencies when this is likely to occur and will try to arrange other support for those services temporarily beyond its means.

3.3. TAF.

3.3.1. Aerodrome Forecast. The OWS issues TAFs in accordance with AFMAN 15-124, *Meteorological Codes*. The TAF is a forecast of weather elements for an airfield covering 24 hours. Forecast elements in the body of the TAF refer to the area within 5 nautical miles (NM) of the center of the airfield. Operationally significant elements outside this area are related to geographical features whenever possible (e.g., FG in valleys). The term "VC" may be used and refers to the area between 5 and 10 NM from the center of the airfield. TAFs are issued every 8 hours and are valid for 24 hours. TAFs are issued daily at 03Z, 11Z, and 19Z, and amended as necessary. TAFs issued by the OWS after the CWT is closed will not be amended and will have a limited METWATCH. TAFs are not issued when the airfield is closed over weekends or holidays.

3.3.2. TAF Specification Criteria. The TAF specifies the time of occurrence to the nearest hour, the duration, and the intensity (when applicable), of expected weather conditions. The following weather criteria are specified in the TAF when expected to occur during the forecast period.

3.3.2.1. Ceiling or visibility decreases to less than, or if below, increases to equal or exceed those values contained in **Table 2.**:

Table 2. TAF Specification Criteria.

Ceiling (ft)	Visibility (m)
3,000	5,000
1,500	3,200
1,000	2,400
700	1,600
500	0800
300	
200	

3.3.2.2. Wind speed change of 10 knots or more.

3.3.2.3. Wind direction changes more than 30 degrees when the predominant speed (including gusts) is expected to be over 15 knots.

3.3.2.4. Precipitation and thunderstorms.

3.3.2.5. Icing or turbulence (for Cat II aircraft), not associated with thunderstorms, from the surface to 10,000 feet MSL.

3.3.2.6. Non-convective low-level wind shear.

3.3.3. TAF Amendments. The OWS forecaster ensures the TAF is representative of expected or actual conditions. The OWS forecaster amends the TAF when:

3.3.3.1. An unforecast change is expected to occur, is expected to last more than 30 minutes, and is not correctly forecast by the next whole hour (e.g., if the time is 2147Z, the next whole hour is 2200Z).

3.3.3.2. An unforecast change occurs, is expected to last more than 30 minutes, and is not forecast by the next whole hour from the time of occurrence.

3.3.3.3. Any time a forecast condition does not occur by the specified hour and is not expected to occur within the next 30 minutes (e.g., a BECMG 2122, or BECMG 2022, group would require an amendment if the forecast change occurred before 2030Z or after 2229Z).

3.3.3.4. Any time a temporary (TEMPO) group becomes predominant or is not expected to occur.

3.3.4. Amendment Criteria. The OWS forecaster amends the TAF when the following occur:

3.3.4.1. Ceiling or visibility is observed or later forecast to increase above, or decrease to less than any of the values in **Table 3.:**

Table 3. TAF Amendment Criteria.

Ceiling (ft)	Visibility (m)
3,000	5,000
1,500	3,200
1,000	2,400
700	1,600
500	0800
300	
200	

3.3.4.2. The predominant wind speed (or gust) is 10 knots or more and is different from the forecast wind speed or gust by 10 knots or more. For example, a forecast of 23018G25KT is amended if the observed predominate wind speed is 28 knots or more, or observed gusts are 35 knots or more. Similarly, the TAF is amended if predominant winds are 8 knots or less, or gusts are 15 knots or less.

3.3.4.3. The wind direction changes 30 degrees or more when the predominant wind speed or gusts are expected to be over 15 knots.

3.3.4.4. Unforecast freezing precipitation begins or ends.

3.3.4.5. The beginning or ending of precipitation causing local weather warning or weather advisory that can be specified in the TAF to be issued, canceled, or amended.

3.3.4.6. The forecaster considers the occurrence or nonoccurrence of precipitation to be operationally significant.

3.3.4.7. Moderate turbulence or icing (for a Cat II aircraft) below 10,000 feet and not associated with thunderstorms begins or ends and is not specified in the forecast.

3.3.4.8. Non-convective low-level wind shear is occurring and expected to continue, or is

expected to begin, but is not specified in the forecast. Or it is specified in the forecast and is not expected to occur.

3.3.4.9. Weather warning criteria occur or are expected to occur, but are not specified in the forecast. Weather warning criteria are specified in the forecast and not expected to occur.

3.3.5. Example TAF (IAW AFMAN 15-124):

Date/Time(z) Wind Vis WX Clouds Altimeter

TAF ETAD AMD 110303 VRB05KT 9999 -SHRA FEW050 SCT200 QNH3007INS

BECMG 1213 27005KT 9999 -SHRA BKN050 BKN100 BKN200 QNH3006INS

BECMG 1617 30005KT 9999 VCSH SCT050 BKN100 BKN200 QNH3005INS

BECMG 1920 33003KT 9999 NSW FEW050 SCT200 QNH3006INS T27/15Z

T13/04Z LIMITED METWATCH 1103 TIL 1104

3.4. Mission Execution Forecast (MEF) Products.

3.4.1. General. The CWT provides MEFs for scheduled ranges, low fly areas, and Temporary Reserved Airspace (TRA) on the intranet weather web page at **http://intranet.spangdahlem.af.mil/52FW/52OG/52OSS/OSW/**. The MEF briefing contains flights level winds, surface temperature, contrail forecasts, solar and lunar data, flight hazards, forecasts for the TRAs, low fly areas, and ranges, and a minimum altimeter setting for Germany and the Benelux. The MEF is tailored to the daily flying schedule with specific attention given to mission limiting weather parameters (**Table 4.**)**.** MEFs are produced daily as required and issued no later than 3.25 hours prior to first launch for that area, and amended throughout the day as necessary.

Table 4. Mission Limiting Weather Parameters.

Description	Flight Levels	Ideal Weather Conditions	Description	Flight Levels	Ideal Weather Conditions
Air Combat Training	100-240	10Kft of Clear Air Space (CAS) above 10K MSL	Incentive	010-180	VFR Conditions
Air Combat Maneuvers	100-240	8Kft of CAS above 10K MSL	Instruments	SFC-250	Takeoff Mins for PWL
Air Strike Control	SFC-240	No worse than 2Kft CIG or 8000m Sfc Vis	Joint Maritime Operations (JAACT)	100-350	8Kft of CAS above 10K MSL and 8000m Sfc Vis
Basic Fighter Maneuvers	100-240	8Kft of CAS above 10K MSL	Local Area Orientation	010-250	VFR Conditions
Basic Surface Attacks	SFC-240	No worse than 2Kft CIG or 8000m Sfc Vis	Navigational	010-250	Takeoff Mins for PWL
Close Air Support	SFC-240	No worse than 2Kft CIG or 8000m Sfc Vis	Night Vision Goggles	050-250	< 2.2 mlux LO Ilum ≥ 2.2 mlux HI Ilum
Combat Search and Rescue	SFC-240	No worse than 2Kft CIG or 8000m Sfc Vis	Offensive Counter Air	100-350	10Kft of CAS above 10K MSL
Cross Country	SFC-400	Takeoff/Alternate & Destination Mins	Red Air	100-240	10Kft CAS above 10K MSL
Dissimilar Air Combat Training	100-500	10Kft of CAS above 10K MSL	Surface Attack Tactics	SFC-300	No worse than 5Kft CIG and 8000m Sfc Vis
Defensive Counter Air	100-500	10Kft of CAS above 10K MSL	Suppression of Enemy Air Defenses	050-300	5Kft of CAS over Polygon
Forward Air Control	SFC-240	No worse than 2Kft CIG or 8000m Sfc Vis	Sweep	100-350	8Kft of CAS above 10K MSL and 8000m Sfc Vis
Functional Confidence Flight	SFC-240	8Kft CIG Wavier able to 4Kft by OG	Tactical Intercepts	100-500	10Kft of CAS above 10K MSL

3.4.2. Range and low fly area forecasts includes surface wind direction and speed, surface visibility, weather phenomena, amount of cloud cover with bases and tops, hazards, and altimeter set-

ting. Water temperature and wave heights will be included if low fly area or range is over water. Range forecasts will also include flight level winds and D-values.

3.4.3. TRA forecasts include amount of cloud cover with bases and tops, obstructions to vision, hazards, and wave heights and water temperature if over water.

3.4.4. MEF Amendments:

3.4.4.1. The MWF will MISSIONWATCH and amend the MEF, and notify the SOF of significant changes whenever the following are met.

3.4.4.2. Ceilings incorrectly forecast to:

3.4.4.2.1. Increase to equal or exceed 1500 feet.

3.4.4.2.2. Increase to equal or exceed 3000 feet.

3.4.4.2.3. Decrease to less than 3000 feet.

3.4.4.2.4. Decrease to less than 1500 feet.

3.4.4.3. Visibility incorrectly forecast to:

3.4.4.3.1. Increase to equal or exceed 5000 meters.

3.4.4.3.2. Decrease to less than 5000 meters.

3.4.4.4. TRA - incorrectly forecast:

3.4.4.4.1. 5000 feet of clear airspace between FL100 - FL200.

3.4.4.4.2. Surface visibility to increase to equal or exceed 8000 meters.

3.4.4.4.3. Surface visibility to decrease to less than 8000 meters.

3.4.4.5. Hazards:

3.4.4.5.1. Thunderstorms (TSTMS), icing (ICG), or turbulence (TURBC) not forecasted but now occurring or expected to occur.

3.4.4.5.2. TSTMS, ICG, or TURBC were forecast but are now no longer expected.

3.4.4.6. Any other changes to deemed necessary to keep the MEF representative.

3.4.5. Example MEF:

Time(Z) Sfc Wind Sfc/Vis WX Clouds bases/tops

07-10Z: 02007KT 8000 BR SCT 020/040 SCT-BKN 090/120 BKN-OVC 140/LYRD/240

10-17Z: 06010G15KT 6000 - RA BR BKN 040/080 BKN100/LYRD/180 OVC200/250

HAZARDS: LGT RIME ICG 120-180 LGT TURBC 020-100

3.5. Pilot-to-Metro Service (PMSV). The CWT provides PMSV services on radio frequency 257.75 MHz when the airfield is open. The CWT operates the program IAW AFMAN 15-129 and uses the standard phraseology found in FAAH 7110.10.

3.6. Other Briefing Services.

3.6.1. Five-Day Outlook. The OWS produces a planning weather slide on their home page each day no later than 0500L, which is amended and updated by the CWT when open. This product contains text and graphics for a plain language Eifel weather forecast for the current day plus 4 days. Users may access this product at either the Spangdahlem intranet weather web page or the HQ USAFE OWS homepage.

3.6.2. 175-1 Briefings. The OWS and CWT prepare DD Form 175-1, *Flight Weather Briefing*, in compliance with AFMAN 15-129, *Aerospace Weather Operations Processes and Procedures*, Attachment 6**.** 52 OSS/OSW requests prior day notification for the best service. The OWS prepares 175-1 weather briefings when the CWT is closed. The OWS also requests prior day notification for best service.

3.6.3. Mass Briefings. The CWT provides mass weather briefs to the fighter squadrons. The fighter squadrons schedule with the CWT the day prior, and will only schedule weather briefings when there are at least four pilots. Manning shortfalls, exercises, and conflicting briefings may preclude the CWT from providing a mass brief, though the flight attempts to satisfy all briefing requests.

3.6.4. Coronet Briefings. The CWT supports all Coronet aircraft movements with planning and mission weather briefings.

3.6.5. Instrument Refresher Course. The CWT presents the weather portion of the monthly Instrument Refresher Course.

3.6.6. Quarterly Safety Meetings and SOF Meetings. The CWT will provide seasonal weather briefings for presentation at quarterly safety meetings and SOF meetings when requested by the 52d Fighter Wing Safety office.

3.6.7. Staff Briefings and Studies. The CWT provides or arranges climatology briefings, weather studies, weather reviews for mishaps, and other staff functions when requested through the flight commander or functional chain of command.

3.6.8. Electro-Optical Support. The CWT provides Electro-Optical Tactical Decision Aids (EOTDAs). The flight requires a description of the target scenario and 2 hours advance notice to produce an EOTDA. The accuracy of the product relies on the detail of the operational input the user supplies. The weather flight uses current Target Acquisition Weapons Software to produce tailored target aids. A request form with instructions is available on the weather webpage, which can be faxed to the CWT, DSN 452-6364. The CWT will also an EOTDA for TRA 205 for an IR and TV sensor for three times each flying day.

3.6.9. Solar/Lunar Data. The CWT provides detailed solar/lunar data available on the intranet web page. Data includes sunrise, sunset, moonrise, moonset, civil twilight, nautical twilight, and an illumination table.

3.6.10. A CWT representative will attend all Airfield Operations Board Meetings.

3.6.11. The CWT will provide heating/cooling days environmental data to Civil Engineering upon request.

4. Weather Watches, Weather Warnings, and Weather Advisories:

4.1. General:

4.1.1. The CWT in conjunction with the HQ USAFE OWS provides a two-tiered watch-warning process for resource protection, so supported organizations can take appropriate actions as outlined in **Attachment 3.** A watch is issued when the potential for dangerous or mission limiting weather exists. The watch is upgraded to a warning when dangerous or mission limiting weather is expected to occur, or is occurring. All resource protection products are issued for Spangdahlem only. These products are applied to Bitburg Annex and to Prüm. All other GSUs receive resource protection either through separate point warnings as documented in COMUSAFE OPLAN 4353, Vol I, Memorandum of Agreement, or by their NATO host nations.

4.1.2. IAW COMUSAFE OPLAN 4353, Vol I, the OWS will issue all watches and warnings and have the overall responsibility for resource protection at Spangdahlem AB. The CWT will act as the "eyes forward" for the OWS and will keep them appraised of local conditions. The CWT may issue weather warnings if there is an immediate threat to life or property and there isn't time to coordinate with the OWS (i.e. tornado).

4.1.3. If the OWS issues a weather warning or weather watch during normal weather station hours of operation, CWT personnel will work in concert with OWS forecasters to evaluate the situation and answer local customer questions concerning actual or forecast severe weather.

4.1.4. If the OWS issues a weather warning or weather watch outside normal weather station hours of operation, the OWS will notify the WOC and the WOC will notify the standby ASF, who will take appropriate action to safeguard personnel and resources locally. CWT responses may include calling in the standby ASF to issue a weather advisory, reporting to the weather station to monitor the current situation, activating the SWAP, or calling the OWS to discuss current forecast reasoning and determine if CWT presence at the weather station is required.

4.1.5. The CWT will issue observed weather advisories, as conditions require.

4.2. Weather Watches:

4.2.1. The OWS issues all weather watches to provide advance notice of potentially severe weather conditions for the Spangdahlem complex. This two-tier plan, issuing watches and warnings, allows the OWS to inform the WOC when the probability of potentially dangerous weather conditions is high. Due to planning necessity and the extensive actions base agencies must take, the following conditions warrant watches (**Table 5.**):

Table 5. Weather Watch Criteria.

Criteria	Desired Lead Time
Lightning within 5NM	30 min
Tornado	As potential warrants
Hail (1/2 inch or greater)	4 hours
Surface winds (45 knots or greater) ***NOTE:*** Expected maximum gust will be specified in watch	4 hours
Heavy rain (2 inches or more in 12 hours)	As potential warrants
Heavy snow (2 inches or more in 12 hours)	As potential warrants
Freezing precipitation	As potential warrants

4.2.2. Watch Initiation. The OWS forecaster issues watches no earlier than 24 hours before the expected weather occurrence.

4.2.3. Watch Termination. Each watch is issued with a beginning and ending time. Once issued, the OWS forecaster monitors weather conditions and either upgrades the watch to a warning, extends the watch, cancels the watch, or allows it to expire if evaluation shows the conditions will not occur.

4.3. Weather Warnings:

4.3.1. HQ USAFE OWS issues all weather warnings to alert base agencies of dangerous or mission limiting weather conditions for the Spangdahlem complex, to include the Bitburg Annex (**Table 6.**). The OWS notifies the WOC immediately upon issuing any warning for Spangdahlem AB and the surrounding area. The WOC, in turn, notifies all appropriate base agencies of the weather warning.

Table 6. Weather Warning Criteria.

Criteria	Desired Lead Time
Lightning occurring within 5NM (issued by Spangdahlem CWT)	Observed
Tornado	15 min
Hail (1/2 inch or greater)	2 hours
Surface winds (45 knots or greater) ***NOTE:*** Expected maximum gust will be specified in warning	2 hours
Surface winds (35-44 knots) ***NOTE:*** Expected maximum gust will be specified in warning	90 min
Heavy snow (2 inches or more in 12 hours)	90 min
Heavy rain (2 inches or more in 12 hours)	90 min
Freezing precipitation	90 min

4.3.2. Warning Initiation. Each warning is issued with a beginning and ending time. Once issued, the forecaster monitors weather conditions and ensures the warning adequately describes the timing and intensity of the weather threat.

4.3.3. Warning Termination. The OWS forecaster cancels the warning (or allows it to expire) if evaluation shows the conditions have ceased and will not occur again, or will not occur at all.

4.4. Weather Advisories.

4.4.1. The Spangdahlem CWT issues weather advisories to notify agencies of actual weather conditions hazardous to operations. Weather advisories are issued when specified criteria are met (**Table 7.**).

Table 7. Weather Advisory Criteria.

Criteria	Issued
Surface winds 25 knots or greater	Observed
Ice FOD for A-10	Observed
Ice FOD for F-16	Observed
Low Level Wind Shear	PIREP
Icing below FL100	PIREP
Snow or Ice Accumulation	Observed

4.4.2. Weather Advisories are terminated when the condition is no longer observed to exist or when PIREPs indicate the condition no longer exists.

4.5. Limitations. The CWT does not have weather-observing equipment at the Bitburg annex nor at Prüm. Watches and Warnings will be issued for these areas when they are issued for Spangdahlem. Lightning warnings will be issued for Spangdahlem only. All other GSUs receive separate point warnings or support from their NATO host countries.

5. Dissemination of Weather Information:

5.1. General:

5.1.1. The CWT is limited by AFI 15-129 to the number of phone contacts it can make during weather notifications. As such, the number of base agencies directly called is kept to the absolute minimum necessary to ensure safe operations.

5.1.2. The CWT does not intentionally release weather information to non-Department of Defense (DoD) agencies and individuals. Approval for release of weather information to non-DoD agencies must be coordinated through the local 52d Communications Squadron Freedom of Information Act office.

5.2. N-TFS:

5.2.1. Observations, TAFs, watches, warnings, and advisories are disseminated by the CWT and/or the OWS to the Air Traffic Control (ATC) facilities via N-TFS.

5.2.2. Other agencies can display these data using the CWT webpage, which is linked to the N-TFS server.

5.2.3. MEFs are disseminated on the CWT web page.

5.2.4. In advent of N-TFS outage, observations will be disseminated locally to ATC facilities via hotline. The observations will be disseminated long-line by either internet, or by requesting OWS or other CWT disseminate via their N-TFS system.

5.3. Alternate Forecasting Site. The CWT forecasters will continue to disseminate weather information over N-TFS and via the internet webpage as long as these communication capabilities exist. In the event these systems are down, the CWT will use the procedures for disseminating weather information during an N-TFS outage, or by the most expedient means available.

5.4. Alternate Observing Site. The ASF at the alternate observing site will use the phone to communicate observations to the alternate forecasting site, who will augment and/or back-up AMS observations and issue any observed advisories needed.

5.5. Weather Watch, Warning, and Advisory Notification:

5.5.1. The OWS and the CWT disseminate weather watches, warnings, and advisories in this order:

5.5.1.1. Call the SOF.

5.5.1.2. Call WOC Emergency Action (EA) Cell, who disseminates to all other base agencies requiring notification (see **Attachment 4**).

5.5.1.3. Call Base Operations.

5.5.1.4. Disseminate over N-TFS.

5.5.1.5. In the event of an N-TFS outage the CWT will also notify the tower and Ground Controlled Approach (GCA) by phone hotline.

6. Space Weather Support:

6.1. General. The CWT is the focal point for all 52 FW space weather support and impacts. Specialized products are hosted on the CWT weather page to aid in-garrison operations. Deployed operations are arranged on a case-by-case basis.

6.2. **Table 8.** contains 52 FW space weather sensitivities and coordinated support products:

Table 8. Space Weather Sensitivities.

Organization	System	Required Products
606 ACS	URC-119 HF Radio	HF Illumination Products
		Point to Point Usable Frequency Products for Ramstein and Aviano
		6-hour Analysis and Forecast Maps
		Space Environment Global Situational Awareness Products
52 CS/SCMS	USC 60 SATCOM	Space Environment Global Situational Awareness Products
52 CS/SCMM	ANT-SC 154 SATCOM	Space Environment Global Situational Awareness Products
	PSC 5 SATCOM	Space Environment Global Situational Awareness Products

6.3. Any agency that experiences degradation or loss of a system capability because of suspected space weather interference should report the incident to the CWT. The CWT will forward the reported impact to the appropriate agencies.

7. Special Mission Requirements:

7.1. General. See **Attachment 5** for 52 FW weather limitations and actions taken by units.

8. Reciprocal Support:

8.1. 52d Fighter Wing Commander (or designated person).

8.1.1. Will chair annual severe weather response meeting, IAW AFI 10-229.

8.1.2. Assigns the CWT commander as executive agent for coordinating annual severe weather response meeting.

8.2. Wing Operations Center (WOC).

8.2.1. Weather Warnings, Watches, and Advisories. The WOC EA Cell disseminates weather warnings, watches, and advisories as listed in **Attachment 4** (**Table A4.1.-Table A4.3.**) so that agencies may take the necessary actions to minimize damage. **Attachment 5** lists the greatest potential weather threats to the 52 FW. In addition, the WOC notifies standby weather personnel of all watches and warnings after normal duty hours.

8.2.2. The Maintenance Operations Center (MOC) receives all weather watches, warnings, and advisories from the EA Cell. The MOC notifies the Aircraft Maintenance Squadron aircraft main-

tenance units (AMUs), Equipment Maintenance Squadron, Munitions Flight, Component Repair Squadron, and other sections that have coordinated with the MOC (**Attachment 4**, **Table A4.4.**).

8.2.3. Both the WOC and MOC will send a representative to attend annual severe weather response meeting.

8.3. Airfield Operations.

8.3.1. ATC responsibilities.

8.3.1.1. Provide ATC orientation/indoctrination for CWT forecasters.

8.3.1.2. Solicit and relay all pilot reports to the observer or forecaster in accordance with FAAO 7110.65.

8.3.1.3. When requested, provide a PMSV radio check.

8.3.1.4. Notify the ASF of the following:

8.3.1.4.1. Active runway changes.

8.3.1.4.2. Active runway wind sensor changes.

8.3.1.4.3. Outages or limitations of the high intensity runway lights or changes in the runway light settings.

8.3.1.4.4. ATC evacuation/relocation to alternate facility.

8.3.1.4.5. N-TFS or FMQ-19 malfunctions.

8.3.1.4.6. Tower visibility when it initially decreases to less than 6,000 meters, or increases to equal or exceed 6,000 meters. ***NOTE:*** When tower visibility is less than prevailing visibility as determined by the CWT, tower visibility becomes the prevailing visibility.

8.3.1.5. Participate in a cooperative weather watch. Notify the observer of the following changes in weather conditions making current observations unrepresentative or affecting aircraft operations:

8.3.1.5.1. Increasing or decreasing visibility through the following thresholds: 8,000; 6000; 5,000; 3,200; 2,400; 2,000; 1,600; 1,200; 800; and 400 meters.

8.3.1.5.2. Start or end of any precipitation type.

8.3.1.5.3. Location of fog banks, haze, and any other restriction to visibility.

8.3.1.5.4. Development or dissipation of thunderstorms, thunderstorm movement, beginning or ending of lightning.

8.3.1.5.5. Significant changes in clouds below 1,000 feet and low cloud cover near the approach end of the runway.

8.3.1.5.6. Any previously unreported weather phenomena that begin to occur (i.e. fog, hail).

8.3.1.6. Relay weather warnings, watches, and advisories to aircrews.

8.3.1.7. Upon request, grant ASF access to tower catwalk to take visibility observation.

8.3.1.8. Conduct annual ATC visibility certification on all personnel.

8.3.2. Base Operations responsibilities:

8.3.2.1. Relay weather warnings and advisories to the 22 FS, 23 FS and 81 FS upon receipt.

8.3.2.2. Report the RSC as well as RCR (decelerometer) readings and all changes to the observer.

8.3.2.3. Notify the weather flight of all aircraft mishaps and emergencies by means of the secondary crash phone.

8.3.2.4. Provide Flight Information Publication (FLIP) en route supplements, and location identifiers as they are updated.

8.3.2.5. Update FLIP weather information when required.

8.3.2.6. Order weather charts from the National Imagery Mapping Agency (NIMA) upon request.

8.3.2.7. Notify weather flight when the airfield is closed and open and when there is a change to the airfield operating hours.

8.3.3. GCA responsibilities:

8.3.3.1. Notify the CWT 15 minutes in advance of a scheduled/unscheduled switch to back-up power. If the monthly generation run is rescheduled notify the CWT of new date/time as far in advance as possible.

8.3.3.2. Provide basic information to the CWT concerning the amount and location of storm echoes on their radar when requested during FMQ-18, Tactical Weather Radar, outages.

8.3.3.3. Inform the weather observer of all N-TFS malfunctions.

8.3.3.4. Solicit and relay all pilot reports to the observer or forecaster in accordance with FAAO 7110.65.

8.3.4. Terminal Instrument Procedures Specialist Responsibilities:

8.3.4.1. Notify the CWT of changes to the published airfield minimums.

8.3.5. Airfield Operations flight will send a representative to attend annual severe weather response meeting.

8.3.6. CWT responsibilities.

8.3.6.1. Initially train and annually certify ATC controllers to take limited weather observations in accordance with AFI 15-111, *Surface Weather Observations*; and local agreement.

8.3.6.2. Encode and disseminate all PIREPs.

8.3.6.3. Encode the runway condition and disseminate it on all applicable observations.

8.3.6.4. Make initial call to Tower for Tower Visibility report before taking an observation when the visibility is less than or equal to 6,000 meters.

8.3.6.5. Aid OWS in issuing weather warnings and advisories over N-TFS and notify Base Operations by telephone as a backup.

8.3.6.6. Arrange for N-TFS and FMQ-19 maintenance.

8.4. Safety Office:

8.4.1. Safety responsibilities:

8.4.1.1. Notify the weather flight commander or representative of investigations of aircraft mishaps of assigned or other military aircraft the 52 FW investigates.

8.4.1.2. Notify the weather flight commander or representative of investigations of ground accidents involving weather or weather services.

8.4.1.3. Notify the weather flight commander or representative of changes in Air Force Occupational, Safety and Health Standards (AFOSHSTD) and guidance.

8.4.2. Will send a representative to attend annual severe weather response meeting.

8.4.3. CWT responsibilities:

8.4.3.1. Provide weather information for safety/accident investigations and reports.

8.4.3.2. Provide a representative, E-7 or higher, to serve as an advisor on safety investigation/accident boards, as required.

8.5. Disaster Preparedness:

8.5.1. Maintain Disaster Preparedness plans for base survival and recovery during a natural disaster.

8.5.2. Will send a representative to attend annual severe weather response meeting.

8.5.3. CWT responsibilities:

8.5.3.1. Provide current meteorological conditions to the DCG in accordance with Operational Plan 32-1, *Disaster Response*.

8.5.3.2. Provide Chemical Downwind Messages and/or Effective Downwind Messages when requested.

8.5.3.3. Provide 24/7 weather standby representative who will carry DCG pager.

8.6. Security Forces. The CWT refers all requests for road conditions to the Security Forces.

8.7. 52d Communications Squadron:

8.7.1. Responsible for maintenance of systems listed below ranked in "order of restore" priority.

8.7.1.1. AN/FMQ-19, Automatic Meteorological Station.

8.7.1.2. FMQ-18, Tactical Weather Radar.

8.7.1.3. Telecommunications equipment. Phones, local area network, internet and intranet communications.

8.7.2. Will send a representative to attend annual severe weather response meeting.

9. Forms Adopted: DD Form 175-1, **Flight Weather Briefing.**

STEPHEN P. MUELLER, Brigadier General (S), USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFPD 15-1, *Atmospheric and Space Environmental Support*

AFI 10-229, *Responding to Severe Weather Events*

AFI 11-202, Vol 3, USAFE SUP 1, *General Flight Rules*

AFI 13-203, *Air Traffic Control*

AFMAN 15-111, *Surface Weather Observations*

AFI 15-114*, Functional Resource and Weather Technical Performance Evaluation*

AFMAN 15-124, *Meteorological Codes*

AFI 15-128*, Aerospace Weather Operations - Roles and Responsibilities*

AFMAN 15-129, *Aerospace Weather Operations - Processes and Procedures*

AFI 15-135*, Combat Weather Team Operations*

AFMAN 37-139, *Records Disposition Schedule*

AFMAN 91-201, *Explosive Safety Standards*

AFOSHSTD 91-100, *Aircraft Flight Line - Ground Operations and Activities*

AFI 11-202V3 USAFE Sup 1, *General Flight Rules*

AFI 11-2A-0A-10 V3, *A/OA-10 Operations Procedures*

COMUSAFE OPLAN 4353, Vol I, *Weather Support for Operations in US European Command*

MCI11-F16 V3, *Pilot Operational Procedures*

TO 1A-10A-2-1-1, *Organizational Maintenance - General Equipment Manual*

TO 1A-10A-2-71JG-2, *Organizational Maintenance Job Guide - Power Plant and Auxiliary Power Unit Operation and Trim*

TO 1F-16C-2-00GV-00-1, *Organizational Maintenance - General Vehicle Description*

TO 1F-16CJ-2-00GV-00-1, *Organizational Maintenance - General Vehicle Description*

TO 1F-16CJ-2-70JG-00-1, *Organizational Maintenance Job Guide - Engine Operation*

TO 31P5-2GPN21-2, *Operation and Maintenance Instruction - Radar Set Group, AN/GPN-21 (V), PN 306760*

Abbreviations and Acronyms

AB—Air Base

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFOSHSTD—Air Force Occupational, Safety and Health Standards

AFPD—Air Force Policy Directive

AFW—Air Force Weather

AMD—Amendment

AMS—AN/FMQ-19 Automatic Meteorological Station

ATIS—Automated Terminal Information System

CIG—Ceiling

CM—Command Meteorologist

CP—Command Post

CWT—Combat Weather Team

CWW—Combat Weather Watch

DCG—Disaster Control Group

DoD—Department of Defense

DSN—Defense Switched Network

EA—Emergency Action

EOTDA—Electro-Optics Tactical Decision Aid

FAAH—Federal Aviation Agency Handbook

FAAO—Federal Aviation Agency Order

FLIP—Flight Information Publication

FMH—Federal Meteorological Handbook

FOD—Foreign Object Damage

FS—Fighter Squadron

FW—Fighter Wing

GCA—Ground Controlled Approach

GMT—Greenwich Mean Time

HQ USAFE—Headquarters United States Air Forces in Europe

IM—Instructor Meteorologist

MEF—Mission Execution Forecast

METAR—Aviation Routine Weather Report

MOC—Maintenance Operations Center

NAMIS—NATO Automated Meteorological Information System

NATO—North Atlantic Treaty Organization

NIMA—National Imagery Mapping Agency

NIPR—Non-classified Internet protocol router

NM—Nautical Miles

NOTAM—Notice to Airman

N-TFS—New Tactical Forecasting System

OWS—Operational Weather Squadron

PIREP—Pilot Report

PMSV—Pilot-to-Metro Service

RCR—Runway Condition Report

RS—Record Special Observation

RVR—Runway Visual Range

RWY—Runway

SOF—Supervisor of Flying

SPECI—Selected Special Weather Report

SWO—Space Weapons Officer

SWSO—Superintendent Weather Station Operations

TACAN—Tactical Air Navigation

TAF—Terminal Aerodrome Forecast

TEMPO—temporary

TO—Technical Order

TRA—Temporary Reserved Airspace

TWR—AN/FMQ-18 Tactical Weather Radar

WOC—Wing Operations Center

Terms

Amendment (AMD)—Used as a message modifier when transmitting an aerodrome forecast amendment.

Area Meteorological Watch—A meteorological watch conducted for local flying areas, large range complexes, exercise area, and other large operating zones.

Desired Lead Time—The amount of advance notice a supported agency desires prior to onset of a particular weather phenomenon.

Ice FOD—Ice that forms on a jet intake, causing a foreign object damage hazard to the engine.

Limited Duty Station—A weather station that provides less than 24-hour a day forecast service.

Meteorological Watch (METWATCH)—Monitoring the weather for a local terminal area and advising

concerned organizations when hazardous conditions that could affect their operation or pose a hazard to life or property are observed or forecast to occur.

MISSIONWATCH—Monitoring the weather for a route, sortie, or training area and advising concerned organizations when forecast conditions change past operational thresholds or hazardous weather conditions that could effort operations or pose a threat to life or property are observed or forecast to occur.

New Tactical Forecast System (N-TFS)—An integrated automated system designed to provide weather and air traffic control products to support the mission of CWTs, weather support units, air traffic control agencies, and command posts of the DoD.

Pilot Report—A report of in-flight weather provided by an aircrew member.

Severe Thunderstorm—A thunderstorm that produces hail greater than or equal to ½ inch diameter or surface wind greater than or equal to 45 knots.

Severe Weather—Any weather condition that poses a hazard to property or life.

Weather Advisory—Notice provided to a supported agency when an established weather condition that could affect its operation is occurring.

Weather Warning—Notice provided to a supported agency when an established weather condition of such intensity as to affect operations, pose a hazard to life or property, and requiring protective action, is occurring or expected to occur.

Weather Watch—A special notice of forecast weather phenomena that alerts supported agencies to the potential for mission impacting weather conditions.

Attachment 2

SEVERE WEATHER RISK ASSESSMENT

A2.1. The following lists the greatest severe weather threats to the 52 FW:

A2.1.1. Damage to aircraft left unsheltered during high winds (operational and monetary impacts). Assessment: 52d Maintenance Group Commander (52 MXG/CC) shelters aircraft when the OWS issues a warning for winds exceeding 50 knots.

A2.1.2. Damage to aircraft sheltered in open hangars during high winds (operational and monetary impacts). Assessment: 52 MXG/CC accepts risk until complete.

A2.1.3. Damage to 606 ACS and ATC radars from winds exceeding 52 knots (operational impact). Assessment: 606 ACS and 52 CS/SCMNR and ATC operations will allow their radar antennas to free-wheel when winds are forecast above 52 knots.

A2.1.4. Lightning threat to the ammunition and fuel storage facilities (threat to life and operations). Assessment: Members evacuate these areas and take cover when the CWT issues a lightning warning.

A2.1.5. High wind or snow damage to hangars 1-5 and other buildings (monetary impact). Assessment: The Wing Commander accepts this risk.

A2.1.6. Potential loss of munitions in the Hardened Aircraft Shelters (HAS) and Combat Aircraft Parking Areas (CAPA) due to a direct lightning strike and subsequent detonation. Assessment: The Wing Commander accepts this risk.

Attachment 3

RECIPIENT WEATHER ADVISORY, WATCH AND WARNING ACTIONS

A3.1. The following list sets *priority* on the order of dissemination. ***NOTE:*** The WOC disseminates tornado warnings in the same manner as they alert the base to an air raid (with a steady siren). All other warnings are disseminated to individual agencies.

A3.1.1. Supervisor of Flying and Air Traffic Control. The SOF, Tower Controllers, and GCA receive all warnings, watches, and advisories to pass to aircraft and execute direct proper safety measures. Additionally, 52 CS/SCMNR and ATC operations will allow the surveillance radar antenna to free wheel when winds are forecast above 52 knots. References: TO 31P5-2GPN21-2.

A3.1.2. Wing Operations Center. WOC receives all warnings, watches, and advisories and disseminates them to base agencies. Reference: This instruction.

A3.1.3. Maintenance Operations Center. MOC receives all warnings, watches, and advisories. MOC advises Aircraft Maintenance Squadrons, Equipment Maintenance Squadron, Munitions Flight, Component Repair Squadron, the fuels shop, and other sections that have coordinated with MOC. References: This instruction and MOC weather notifications in **Attachment 4**.

A3.1.4. 606th Air Control Squadron (606 ACS). The 606 ACS receives all warnings, watches, and advisories for winds greater than 25 knots, and lightning watches and warnings. They secure the SATCOM TSC-100A satellite dish during thunderstorm advisories. During lightning conditions, they shutdown and isolate their computers, and check ground wires. The 606 ACS visually checks the condition of high antennas during wind advisories. They free wheel the AN/TPS75 radar when a warning for winds in excess of 50 knots is issued. References: TO AN/TPS-75 and this instruction.

A3.1.5. Wing Commander. The wing commander receives all weather watches and weather warnings due to the severe nature of the expected weather. Reference: This instruction.

A3.1.6. Operations Group Commander. The Operations Group Commander (OG/CC) receives all weather advisories, watches, and warnings because the OG/CC has special knowledge of all aircraft that may be affected. Reference: This instruction.

A3.1.7. Fighter Squadrons. All fighter squadrons receive all weather advisories, watches, and warnings so pilots may anticipate hazardous flying conditions. Reference: This instruction.

A3.1.8. Maintenance. The MOC receives all weather advisories, watches, and warnings. Maintainers prepare the aircraft for thunderstorms during watches. They cease maintenance operations during lightning conditions. Maintainers take actions in **Table A5.1.** through **Table A5.7.** Reference: This instruction.

A3.1.9. 52d Mission Support Group Commander. The 52d Mission Support Group Commander (52 MSG/CC) receives all weather advisories, watches, and warnings, because the 52 MSG/CC has special knowledge of all 52 MSG activities. The group notifies the School Liaison Officer of weather warnings and watches. Reference: This instruction.

A3.1.10. Lodging. Lodging receives watches and warnings for lightning and notifies Services Information Management Systems (SIMS). During lightning watches and lightning warnings, SIMS evaluates the situation and shuts down the lodging and dining facility computers if the threat is severe and backup systems are compromised. Reference: 52d Services Squadron Severe Weather Procedures.

Lodging will contact Family Member Programs Flight Chief who will in turn contact the Child Care and Youth Programs offices to end outside (Spangdahlem AB and Bitburg Annex) play or to cancel youth sporting events. Lodging will contact the Fitness Center Director of weather warnings who will contact the referees and/or umpires during sporting events.

A3.1.11. F-16 Simulator Cell. The simulator cell receives watches and warnings for lightning. They prepare to shut down the simulator during lightning watches, and execute during lightning warnings. Reference: Local shop policy and this instruction.

A3.1.12. Golf Course. The golf course receives lightning watches and warnings. They advise players of lightning watches and recall players from the course during lightning warnings. Reference: This instruction.

A3.1.13. The 52d Communications Squadron Maintenance Control (normal duty hours) and the Electronic Messaging Center (after hours) receives all warnings, watches and advisories for winds greater than 25 knots, and lightning watches and warnings. They disseminate the information to technical controllers, cable maintainers, and other sections to limit or discontinue outdoor jobs that are hazardous during inclement weather. Reference: This instruction.

A3.1.14. 52d Civil Engineering Customer Service. Customer service receives all warnings, watches and advisories for winds greater than 25 knots. The Spangdahlem and Bitburg customer service section will announce all weather advisories and warnings (as notifications are made per **Attachment 4**) to all craftsmen working on and around the installation to limit or discontinue outdoor jobs that are hazardous during inclement weather. After normal duty hours, Fire Dispatch will make the necessary notifications. Reference: This instruction.

A3.1.15. Vehicle Dispatch. They notify all flights, flight line workers, and drivers of inclement weather conditions and to secure all vehicles. They shatter-guard large windows with masking tape during winds exceeding 45 knots. Reference: 52d Logistic Readiness Squadron Vehicle Management Flight (52 LRS/LGRV) Inclement Weather Checklist.

A3.1.16. Law Enforcement. The security forces receive all warnings, watches, and advisories for winds greater than 25 knots. They disseminate the information to patrols and issue appropriate equipment and gear to carry out security operations during inclement weather. Reference: This instruction.

A3.1.17. Fire Department. The fire department receives all warnings, watches, and advisories for winds greater than 25 knots. They annotate their emergency response board of recurring information they disseminate during a response to an emergency. Reference: This instruction.

A3.1.18. Bitburg Emergency Room. The emergency room receives all warnings, watches, and advisories for winds exceeding 25 knots, and all watches and warnings for heavy snow and freezing rain. They advise hospital personnel and visitors in the facility to use caution via the hospital overhead public address system. Reference: Local operating instructions.

A3.1.19. American Forces Network (AFN). The radio station broadcasts weather warnings and watches for tornadoes, freezing precipitation, and heavy snow. Reference: This instruction and letter of agreement between 52 OSS/OSW, AFN, and 52d FW/Command Post.

A3.1.20. Prüm. Prüm receives all warnings and watches. Reference: This instruction.

A3.1.21. Commissaries. The Spangdahlem and Bitburg commissaries receive all warnings and watches. They pass the information to commissary management. Reference: This instruction.

A3.1.22. Base Operations. Base Operations receives all warnings, watches, and advisories and calls to the fighter squadrons to ensure they are aware of the information. Reference: This instruction.

A3.1.23. Roads and Pavements. Roads and pavements, (i.e., snow control), receive all warnings, watches, and advisories for freezing rain, heavy snow, and forecasts for any accumulation of snow and/or ice.

A3.1.24. Defense Reutilization and Marketing Office (DRMO). DRMO receives all warnings and watches, except warnings and watches for lightning within 5NM of Spangdahlem complex. Reference: This instruction.

Attachment 4

WING OPERATIONS CENTER NOTIFICATION MATRICES

A4.1. WOC Weather Notifications.

A4.1.1. The WOC contacts all agencies simultaneously via telephone net.

Table A4.1. EA Cell Weather Advisory Notifications.

Agency	Surface Winds 25 to 34 kts	A-10 / F16 Ice FOD	Icing Below FL 10,000	Snow/Ice Accumulation	Low Level Wind Shear
606 ACS	X		X		X
Bitburg ER	X				
CE	X				
52 CS/SCM	X				
CSC	X				
Fire Dispatch	X				
MOC	X	X	X	X	X
SF Duty Desk	X				
Snow Control				X	
Vehicle Dispatch	X				

Table A4.2. EA Cell Weather Watch Notifications.

Agency	Lightning within 5NM	Tornado	Hail ½" or greater	Surface Winds 45kts or greater	Heavy Precip (2" or more of rain or snow in 12 hrs)	Freezing Precipitation
606 ACS	X	X	X	X	X	X
AFN		X	X	X	X	X
Bitburg ER		X		X	X	X
CE	X	X	X	X	X	X
52 CS/SCM	X	X	X	X		
Commissary, Bitburg	X	X	X	X	X	X
Commissary, Spangdahlem	X	X	X	X	X	X
CSC	X	X	X	X	X	X
DRMO		X	X	X	X	X
Fire Dispatch	X	X	X	X	X	X
Flight Simulator	X					
Golf Course	X					
Lodging	X					
MOC	X	X	X	X	X	X
Prüm Tech Control	X	X	X	X	X	X
SF Duty Desk	X	X	X	X	X	X
Snow Control					X (snow only)	X
Vehicle Dispatch				X	X	X
*Tornado watches will be broadcast to general base populace via AFN broadcast						

Table A4.3. EA Cell Weather Warning Notifications

Agency	Lightning within 5NM	Tornado	Hail 1/ 2" or greater	Surface Winds 35 to 44 kts	Surface Winds 45 kts or greater	Heavy Precip (2" or more of rain or snow in 12 hrs)	Freezing Precipitation
606 ACS	X	X	X	X	X	X	X
AFN		X	X		X	X	X
Bitburg ER		X		X	X	X	X
CE	X	X	X	X	X		
52 CS/SCM	X	X	X	X	X		
Commissary, Bitburg		X	X	X	X	X	X
Commissary, Spangdahlem	X	X	X	X	X	X	X
CSC	X	X	X		X	X	X
DRMO		X	X	X	X	X	X
Fire Dispatch	X	X	X	X	X	X	X
Flight Simulator	X						
Golf Course	X						
Lodging	X						
MOC	X	X	X	X	X	X	X
Prüm Tech Control		X	X	X	X	X	X
SF Duty Desk	X	X	X	X	X	X	X
Snow Control						X (snow only)	X
Vehicle Dispatch				X	X	X	X
*Tornado warnings will be broadcast to general base populace via Giant Voice and a steady siren							

A4.2. Maintenance Operations Center (MOC) Weather Notifications.

A4.2.1. The MOC broadcasts all weather advisories, watches and warnings over the maintenance nets and contacts the following agencies when weather warnings are issued:

Table A4.4. Agencies to Contact for MOC Weather Notifications.

EMS Munitions Control	Egress Shop
22 AMU/23 AMU/81 AMU	Test Cell
AMXS Supervision	POL
EMS Super	Photo Sensors
CMS Super	Fuel Shop
AIE	ECM Pod Shop
Safety	NDI
MXG Quality Assurance	
Gold Flag	

Attachment 5

52 FW WEATHER LIMITATIONS

A5.1. General. **Table A5.1.** through **Table A5.7.** define mission limiting weather phenomena, and what actions units will take when that phenomena occurs.

Table A5.1. Ceiling.

Ceiling	Unit	Reference	Action
8,000ft	52 OSS/OSA	FAAO 7610.4	Simulated flameout high key pattern minimum
4,000ft	52 OSS/OSA	F16-1-4000	Simulated flameout low key pattern minimum
3,000ft	52 OSS/OSW	AFMAN 15-111	AFW Requirement
1,500ft	52 OG/OGV 52 OSS/OSW	AFI 11-202V3 USAFE Sup 1 AFMAN 15-111	Standard fixed wing VFR minimum in Europe Pilot category E minimum
1,100ft	52 OSS/OSA	FLIP	TACAN and ILS CAT E circling minimum for RWY 05 and 23
1,000ft	52 OG/OGV 52 OSS/OSW	AFI 11-202V3 USAFE Sup 1 AFMAN 15-111	USAFE single alternate airfield minimum AFW requirement
700ft	52 OG/OGV 52 OSS/OSW	AFI 11-202V3 USAFE Sup 1 AFMAN 15-111	USAFE fighter dual alternate minimum ceiling Pilot category D minimum AFW requirement
600ft	52 OSS/OSA	FLIP	TACAN and ILS category C, D circling minimum for RWY 05 ILS category C, D circling minimum for RWY 23 TACAN category A, B, C, D, circling minimum for RWY 23 TACAN category A, B, C, D, E straight-in approach minimum for RWY 23

Ceiling	Unit	Reference	Action
500ft	52 OSS/OSA 52 OG/OGV 52 OSS/OSW	FLIP AFI 11-202V3 USAFE Sup 1 AFMAN 15-111	TACAN and ILS category A, B circling minimum for RWY 05 ILS category A, B circling minimum for RWY 23 Localizer category A, B, C, D, E straight-in approach minimum for RWY 23 Pilot category C minimum Fighter/Attack Aircraft touch and go minimum AFW requirement
400ft	52 OSS/OSA	FLIP	TACAN and Localizer category A, B, C, D, E straight-in approach minimum for RWY 05
300ft	52 OG/OGV 52 OSS/OSW	AFI 11-202V3 USAFE Sup 1 AFMAN 15-111	Pilot category B minimum Other fixed wing aircraft touch and go minimum AFW requirement
200ft	52 OSS/OSA	FLIP	ILS category A, B, C, D, E straight-in approach minimum for RWY 05 and 23
100ft	52 OSS/OSA 52 OG/OGV	FLIP AFI 11-202V3 USAFE Sup 1	PAR straight-in category A, B, C, D, E approach minimum for RWY 05 and 23 Pilot category A minimum

Table A5.2. Visibility.

Visibility (Reported Value)	Unit	Reference	Action
8,000m	52 OG	FAAO 7610.4 F16-1-4000	Simulated flameout for high and low key pattern minimum
4,800m (5,000m)	52 OSS/OSA 52 OG/OGV 52 OSS/OSW	FLIP AFI 11-202V3 USAFE Sup 1 AFMAN 15-111	TACAN and ILS category E circling minimum for RWY 05 and 23 Standard fixed wing VFR minimum in Europe Pilot category E minimum AFW requirement
3,200m	52 OSS/OSA 52 OG/OGV 52 OSS/OSW	FLIP AFI 11-202V3 USAFE Sup 1 AFMAN 15-111	TACAN and ILS category D circling minimum for RWY 05 and 23 Pilot category D minimum AFW requirement

Visibility (Reported Value)	Unit	Reference	Action
2,400m	52 OSS/OSA 52 OG/OGV	FLIP AFI 11-202V3 USAFE Sup 1	TACAN and ILS category C circling minimum for RWY 05 and 23 TACAN category E straight-in approach minimum for RWY 23 Pilot category C minimum
2,000m	52 OSS/OSA	FLIP	TACAN category D straight-in approach minimum for RWY 23
1,600m	52 OSS/OSA 52 OG/OGV 52 OSS/ OSW	FLIP AFI 11-202V3 USAFE Sup 1 AFMAN 15-111	TACAN and ILS category A, B circling minimum for RWY 05 and 23 TACAN category E straight-in approach minimum for RWY 05 TACAN category C straight-in approach minimum for RWY 23 Localizer category D, E straight-in approach minimum for RWY 23 Pilot category B minimum USAFE fighter and attack aircraft touch and go minimum AFW requirement
1,200m	52 OSS/OSA	FLIP	TACAN category C, D straight-in approach minimum for RWY 05 Localizer category C, D, E straight-in approach minimum for RWY 05 Localizer category C straight-in approach minimum for RWY 23
800m	52 OSS/OSA	FLIP	TACAN category A, B straight-in approach minimum for RWY 05 and 23 Localizer category A, B straight-in approach minimum for RWY 05 and 23 ILS category A, B, C, D, E straight-in approach minimum for RWY 05 and 23
400m	52 OSS/OSA 52 OG/OGV	FLIP AFI 11-202V3 USAFE Sup 1	PAR category A, B, C, D, E straight-in approach minimum for RWY 05 and 23 Pilot category A minimum

Visibility (Reported Value)	Unit	Reference	Action
<90m (not reported)	52 FW	AFOSHSTD 91-100	Refueling and explosive laden vehicles will not be operated unless directed by the Wing Commander
<30m (not reported)	52 FW	AFOSHSTD 91-100	No vehicles (except emergency and alert vehicles) will operate on the flight line.

Table A5.3. Runway Visual Range.

RVR (Reported value)	Unit	Reference	Action
1,600m (P1,500m)	52 OSS/OSA	FLIP	Category A, B Circling Minimum for RWY 05/23.
1,520m (1,500m)	52 OSS/OSA	FLIP	TACAN category E straight-in approach minimum for RWY 05 TACAN category C straight-in approach minimum for RWY 23 Localizer category D, E straight-in approach minimum for RWY 23
1,220m (1,200m)	52 OSS/OSA	FLIP	TACAN category C, D straight-in approach minimum for RWY 05 Localizer category C, D, E straight-in approach minimum for RWY 05 Localizer category C straight-in approach minimum for RWY 23
730m (750m)	52 OSS/OSA 52 OSS/OSW	FLIP AFMAN 15-111	TACAN category A, B straight-in approach minimum for RWY 05 and 23 Localizer category A, B straight-in approach minimum for RWY 05 and 23 ILS category C, D, E straight-in approach minimum for RWY 05 and 23 AFW requirement
610m (600m)	52 OSS/OSA	FLIP	ILS category A, B straight-in approach minimum for RWY 05 and 23

RVR (Reported value)	Unit	Reference	Action
490m (500m)	52 OSS/OSA	FLIP	PAR category A, B, C, D, E straight-in approach minimum for RWY 05 and 23

Table A5.4. Wind.

Winds	Unit	Reference	Action
20kts	MOC, 81 AMU	1A-10A-2-1-1	Tie down all jack pads when jacking
25kts	52 EMS, MOC, 22 AMU, 23 AMU, 81 AMU	AFOSHSTD 91-100 1F-16CJ-2-00GV-00-1	Close hangar doors and secure. Remove maintenance equipment from aircraft parking areas and secure. Cease aircraft towing operations.
30kts	22, 23 AMU, 52 CMS	1F-16C-2-00GV-00-1	Use caution with open F-16 canopies Down-jack jacked F-16s
35kts	22 FS, 23 FS, 81 FS	Local Procedures	Parachute Dragging Limits (Punch Out) Cease launching aircraft.
40kts	52 EMS,.81 AMU	AFMAN 91-201 1A-10A-2-1-1	Cease outdoor munitions operations Tie down or hangar A-10s, do not jack
45kts	52 LRS	AFOSHSTD 91-100	Fuel operations cease
50kts	52 MXG, 22 AMU, 23 AMU, 81 AMU, MOC, 52 CMS/LGMM	AFOSHSTD 91-100 1F-16CJ-2-00GV-00-1 1A-10A-2-1-1	Shelter aircraft, tie down transient aircraft Double chock MLG wheels Retract flaps and speed brake Close and lock F-16 and A-10 canopies
52kts	52 CS/SCMNR, 606 ACS	TO 31P5-2GPN21-2 TO 31P3-2TPS75-2	Place AN/GPN-20 ASR in free wheel status and turn it off Free-wheel TPS-75 radar
55kts	MOC, 22, 23 AMU	1F-16CJ-2-00GV-00-1	Close F-16 radomes
65kts	52 OSS/OSA	AFI 13-203	Evacuate the tower
70kts	MOC, 22, 23 AMU	1F-16CJ-2-00GV-00-1	Tie down unsheltered F-16s
78kts	606 ACS	TO 31P3-2TPS75-2	Take down TPS-75 radar

Winds	Unit	Reference	Action
130kts	52 CS/SCMH	TO 31P5-2GPN21-2	Remove and relocate AN/GPN-20 Radar (ASR) (Highest wind recorded since 1973 - 90 knots)

Table A5.5. Cross Wind.

Cross wind	Unit	Reference	Action
20kts (wet)	22 FS, 23 FS	MCI11-2F16 V3	Cease F-16 operations
25kts (dry)	22 FS, 23 FS	MCI11-2F16 V3	Cease F-16 operations
35kts	81 FS	AFI 11-2A/0A-10 V3	Cease A-10 operations

Table A5.6. Lightning.

Lightning	Unit	Reference	Action
Watch (potential exists for thunderstorms)	MOC, 52 OG, 52 MXG, 52 EMS, 52 LRS	AFOSHSTD 91-100	Operations may continue; however all personnel must be prepared to implement lightning warning procedures without delay
Warning (lightning is observed within 5 NM)	MOC, 52 OG, 52 MXG, 52 EMS, 52 LRS, 52 SVS, 52 CS, 52 CES, 606 ACS	AFOSHSTD 91-100 AFMAN 91-201 TO 31P3-2TPS75-2	Cease all outside activities, including recreational activities, and seek shelter Cease all aircraft fuel servicing and maintenance activities (including LOX servicing) All explosives operations to include loading, unloading, or pre-load operations will cease when outdoors or at an indoor location that has no LPS protection. The continuation of explosives operations within an LPS protected facility in not prohibited. When continuing operations in LPS equipped facilities, assess the need and urgency for doing so. Cease all open air and underground utility work. Secure SATCOM TSC-100A satellite dish.

A5.2. Thunderstorm Avoidance Rules (IAW USAFE supplement to AFI 11-202, Vol 3):

A5.2.1. Below FL 230, avoid by at least 10 nm.

A5.2.2. At or above FL 230, avoid by at least 20 nm.

Table A5.7. Ice FOD.

Temp/Humidity	Unit	Reference	Action
Between 7 Cº and - 7 Cº/RH =70% or any visible water	MOC, 22 FS, 23 FS, 22 AMU, 23 AMU	TO 1F-16CJ-2-70JG-00-1	F-16 threshold
Between 4 Cº and -28 Cº/Dew Point Depression = 4 Cº	MOC, 81 FS, 81 AMU	TO 1A-10A-2-71JG-2	A-10 threshold

A5.3. Icing:

A5.3.1. F-16 aircraft should avoid operating in areas of icing.

A5.3.2. A/OA-10 aircraft may operate for brief periods in light icing conditions, but should not operate in areas of forecast and observed moderate or greater intensity icing.

A5.4. Turbulence:

A5.4.1. F-16 aircraft should avoid areas of turbulence.

A5.4.2. A/OA-10 aircraft should avoid areas of forecast and observed moderate or greater intensity turbulence.